

AMENDMENTS TO THE CLAIMS

The listing of claims replaces below all prior versions of claims in the application.

1. (Currently Amended) A scene classification apparatus of video ~~for classifying each scene composed of one or more continuous shots based on a content of the scene, where a scene is composed of one or more continuous shots and thus a larger unit than a shot, for classifying a sequence of shots into a certain type of scene, whose number is smaller than a total number of shots, comprising:~~

a shot segmentation device to segment the video into respective shots;

~~a detector for detecting~~ a calculator for calculating shot density DS of the video from the respective shots;

~~a detector for detecting~~ a calculator for calculating motion intensity of the respective shots; and

a dynamic/static scene ~~detector~~ classifier for classifying the respective shots into a dynamic scene with much motions or a static scene with little motions based on the shot density and the motion intensity.

2. (Currently Amended) The scene classification apparatus of video according to claim 1, wherein the dynamic/static scene ~~detector~~ classifier classifies a ~~[[shot]]~~ sequence of shots whose shot density is larger than first reference density and whose motion intensity is stronger than first reference intensity into the dynamic scene.

3. (Previously Presented) The scene classification apparatus of video according to claim 1, wherein the dynamic/static scene detector classifies a shot whose shot density is smaller than second reference density and whose motion intensity is weaker than second reference intensity into the static scene.

4. (Previously Presented) A scene classification apparatus of video for classifying each scene composed of at least one continuous shot based on a content of the scene, comprising:

a shot segmentation device to segment the video into respective shots;

an extractor for extracting shots similar to a current target shot from shots after a shot before the target shot only by a predetermined interval; and

a slow scene detector for classifying the target shot into a slow scene of the similar shot based on motion intensity of the target shot and the similar shot.

5. (Original) The scene classification apparatus of video according to claim 4, wherein the slow scene detector classifies the target shot into the slow scene of the similar shot when the motion intensity of the similar shot is stronger than the motion intensity of the target shot.

6. (Original) The scene classification apparatus of video according to claim 4 or 5, further comprising a first highlight scene detector for classifying a scene composed of a plurality of shots continued just before the slow scene into a first highlight scene.

7. (Original) The scene classification apparatus of video according to claim 6, further comprising:

detector for detecting intensity of an audio signal accompanied by the video into shot; and
a second highlight scene detector for classifying a scene composed of a plurality of shots continued before and after a shot with the audio signal intensity stronger than the predetermined intensity into a second highlight scene,

wherein the scene classified into the first highlight scene and the second highlight scene is classified into the highlight scene.

8. (Original) The scene classification apparatus of video according to claim 7, further comprising:

a commercial scene detector for classifying the respective shots into a commercial scene,
wherein a scene classified into a scene other than the first highlight scene, the second highlight scene and the commercial scene is classified into the highlight scene.

9. (Previously Presented) A scene classification apparatus of video for classifying each scene composed of at least one continuous shot based on a content of the scene, comprising:

a shot segmentation device to segment the video into respective shots;
a detector for detecting a histogram relating to motion directions of the respective shots;
and

a detector for detecting a scene in which a camera operation has been performed based on the histogram of motion direction.

10. (Original) The scene classification apparatus of video according to claim 9, further comprising a zooming scene detector for, when the histogram of motion direction is uniform and a number of elements of respective bins is larger than a reference number of elements, classifying its shot into a zooming scene.

11. (Original) The scene classification apparatus of video according to claim 9, further including:

detector for detecting spatial distribution of motion of each shot; and

a panning scene detector for detecting whether the respective shots are a panning scene based on the histogram of motion direction and the spatial distribution of motion.

12. (Original) The scene classification apparatus of video according to claim 11, wherein when the histogram of motion direction is concentrated in one direction and the spatial distribution of motion is uniform, the panning scene detector classifies the shot into the panning scene.

13. (Previously Presented) A scene classification apparatus of video for classifying each scene composed of one or more continuous shots based on a content of the scene, comprising:

a shot segmentation device to segment the video into respective shots;
a detector for detecting a shot density DS of the video; and
a commercial scene detector for detecting a commercial scene by comparing a shot density detected during a predetermined interval with a predetermined reference shot density.

14. (Previously Presented) A scene classification apparatus of video for classifying each scene composed of one or more continuous shots based on a content of the scene, comprising:

a shot segmentation device to segment the video into respective shots;
a detector for detecting a number of shot boundaries of the video; and
a commercial scene detector for detecting a commercial scene by comparing a number of shot boundaries detected during a predetermined interval with a predetermined reference number.

15. (Original) The scene classification apparatus of video according to claim 1 or 4, wherein the video are compressed data, and the motion intensity is detected by using a value of a motion vector of a predictive coding image existing in each shot.

16. (Original) The scene classification apparatus of video according to claim 11, wherein the video are compressed data, and the spatial distribution of motion is detected by using a value of a motion vector of a predictive coding image existing in each shot.

17. (Original) The scene classification apparatus of video according to claim 9, wherein the video are compressed data, and the histogram of motion direction is detected by using a value of a motion vector of a predictive coding image existing in each shot.

18. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the motion intensity is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

19. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the spatial distribution of motion is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

20. (Previously Presented) The scene classification apparatus of video according to claim 1 or 4, wherein the video are uncompressed data, and the histogram of motion direction is detected by using a value of a motion vector representing a change in motion predicted from a compared result of frames composing the respective shots.

21. (Original) A scene classification apparatus of video for segmenting video into shots and classifying each scene composed of one or more continuous shots based on a content of the scene, comprising:

a detector for detecting a highlight scene;

extracting and combining means for extracting and combining a plurality of highlight scenes; and

inserting means for inserting a video transition effect into a combined portion of the respective highlight scenes,

wherein the inserting means makes a type of the video transition effect to be inserted different according to whether the highlight scenes to be combined are the dynamic scene or the static scene.

22. (Currently Amended) The scene classification apparatus of video according to ~~claim 1~~ claim 21, wherein when the highlight scene is the dynamic scene, the video transition effect with small change in an image mixing ratio is inserted therein, and when the highlight scene is the static scene, the video transition effect with large change in the image mixing ratio is inserted therein.